16h Int







...for aviation

and industry



INTERNATIONAL STEEL COMPANY

EVANSVILLE, INDIANA, U.S.A.

INTERNATIONAL DOORS for aviation and industry

For over 60 years, International Steel Company of Evansville, Indiana, has been a leader in supplying custom-built doors to aviation, industry, and business. In that time, International has accumulated the technical and practical knowledge required to solve virtually ANY problem involving doors.

Our production facilities and our ingenuity have kept pace with our steady growth, and today International is exceptionally well qualified to help YOU plan and establish your specific door requirements. Regardless of how unusual or exacting your specifications, International welcomes the opportunity to develop the one best solution to your door problems. International Industrial and Hangar Doors are custom-made to meet individual requirements and specifications for each installation.

doors for every need

Is your door area exceptionally wide, or high? Does its smallness call for special engineering to save space? Are there headroom problems, unusual weather conditions, or special usage factors that make your industrial or hangar door requirements extremely "out of the ordinary"? In all of International's many years of experience as door specialists, we have always found the right answer to such problems from both the engineering and economic angles. You pay no premium for calling upon International to do the job right. You DO save time, money and worry from the start . . . and right on through the many years of dependable, trouble-free service rendered by your International Door installation.

engineering service

The services of International Steel's engineering department are at your complete disposal for preliminary planning of your door requirements. Calling upon our engineering staff does not obligate you in any way. In fact, this is the most satisfactory means of arriving at the best, most economical solution to any custom-built door problem in the shortest possible time.

You know the job you want done . . . what you want from your door installation. We know, from experience, just how that can be accomplished in the most efficient and satisfactory manner for all concerned. So, if it is merely a matter of "getting to-gether" for preliminary planning . . . call us now!

Also, if you desire, we will be glad to explain International's complete erection facilities.

proved by wide use

Many long-standing installations all over the nation . . . in industrial plants, commercial buildings and aviation structures . . . attest to International's firm policy of designing and producing only doors that assure permanent satisfaction in every respect.

Four inherent qualities guarantee this satisfaction with every International Door. These qualities are: (1) Easy, fast-acting operation, (2) Utmost safety and protection, (3) Longest trouble-free service, and

(4) Lasting weather-tightness.

Regardless of where you are located, International assures you complete, efficient cooperation on any door problem. No doubt, there are a number of International Door installations in your vicinity. A partial list of users is given on page 16 . . . additional names will be sent you on request.



INTERNATIONAL DOORS

16h Int

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	DIMENSIOI Width	NS — Feet Height	METHOD OF OPERATION	OPERATING PATTERN	ADVANTAGES	SEE PAGE
Commence of the last of the la	60 to 800	20 to 60	Manual and Motorized	Composed of number of floor-mounted leaves which move horizontally to sides of opening either power-driven or by hand.	Lowest cost door for large openings. Manual operation on leaves up to 12' x 24'. Floor-mounted leaves remove weight from structure. Several methods of motorized operation available.	4-5
COLUMN TO THE PERSON OF THE PE	60 to 500	40 to 65	Motorized	Door is divided horizontally. Bottom leaf rises behind top leaf, both leaves swing out and up. They come to rest horizontally, forming canopy opening.	Divided vertically into individual operating sections — open only as required. Heat saving. Counterweights integral part of door, save space. Lower leaf rises vertically for complete use of inside and outside areas. Economical in large openings.	6
0	50 to 120	14 to 30	Motorized	Rises vertically in initial opening movement, then swings out and up with approximately 60% of door height projecting horizontally over opening outside.	Economical for small to medium openings where headroom is available. Fast operation saves heat. Does not encroach on usable floor space in opening or closing. Canopy offers protection from inclement weather.	7
	40 to 500	16 to 35	Motorized	Swings out and up from closed position, and comes to rest with approximately 50% of door height projected outside as a canopy over opening.	Minimum headroom required above truss bottom chords. Sectionalized into individual operating units permitting lower door height over wings and high door for tail. Eliminates tail door operation.	8
	3 SIZES 40' 0" 45' 0" 50' 0"	9' 7 %" 12' 0"	Manual	Door breaks outward at horizontal center. Bottom moves in initially, then rises vertically and center moves outward. Comes to rest with about ½ door opening height projected outside over opening.	Economical overhead door for small shop and "T" hangars. Low maintenance. Easy to operate. No projection inside hangar. Cannot become icebound, bottom half moves inward.	9
	60 to 100	20 to 30	Manual	Operation similar to straight slide doors except all leaves are stored inside building. Adjustable swivels on bot- tom rollers permit use of curved rails into structure.	Saves space at low cost. Floor mounted. Slides along inside wall out of way. No need for outside tracks, so no blocking by snow, mud, slush. Stored "around-the-corner" inside. Recommended when building areas do not permit door pockets.	10
	20 to 100	4 to 10	Motorized	Crane doors swing in and up, and are hinged to soffit — completely out of the way. They permit ease of movement of crane into or out of building.	Where crane runways extend out of building, here crane door is ideal for sealing area through which crane must pass against weather. Saves heat. Available with steel sash for maximum light entry. Fast operating.	11
	10 to 20	10 to 20	Manual and Motorized	Door is normally in 2 sections. The bottom leaf rises vertically behind top leaf. Both leaves swing up and in, and come to rest inside, behind and clear of opening, parallel to floor.	Advantageous especially where headroom is at premium. Use motorized to provide fast operation, minimum heat loss. Rigid rugged construction assures long trouble-free service, permanently tight weathering.	12
	10 to 20	10 to 20	Manual and Motorized	Door moves vertically up above the opening, and stores directly behind and above opening.	Tubular or structural construction. Use for strength, durability, weather-tightness. Available in 1, 2, or 3 sections depending upon headroom. Conserves valuable floor space. Usually mounted inside, but can be mounted outside building.	13
	16 to 20	16 to 20	Manual	Multi-sectioned. Door moves directly up, behind and above door opening.	Affords better use of space directly behind door opening. Permits maximum utilization of lighting and sprinkler systems in areas adjacent to door openings.	14
1						

STRAIGHT SLIDE DOORS





Bi-Parting Power Operated Straight Slide Hangar Doors (250' x 37' high) built by International for U. S. Army Air Force, Scott Field, Illinois.

The International Straight Slide Door is the most simple and inexpensive of the large doors. Manually operated units, available in floor mounted type, are recommended only where doors are used infrequently and weather is generally mild.

The motor-operated International Straight Slide Door is recommended where fast operation, avoidance of heat loss, and heavy weight are prime requisites. This type of door is best suited for floor mounting removing weight of leaves from structure . . . and is most successfully used for hangar installations. The International Motor-Operated Straight Slide Door is low in initial cost and economical to maintain. Three alternate methods of motor operation are available: (1) INDIVIDUALLY POWER OPERATED: Where large leaves are used, each leaf can be individually operated by a traction drive complete with controls and drive within each leaf; (2) BI-PARTING POW-ER OPERATED: A traction drive attached to center leaves only, driving one half to one side by means of a series of interconnecting cables. All leaves arrive at the full open position simultaneously; (3) PARTIAL GROUP POWER OPERATED: Separate groups of 3 leaves with a traction drive on each center leaf of each group.

International Straight Slide Doors are furnished complete with top and bottom rollers, cane bolts, wheel locks, pull handles, bumpers, weathering, steel sash inserts, pilot doors, and where desired, motor operators and controls. Type of covering, number of sash and electrical safety edge for leading leaves are optional.

Slide door leaf frames are of hot-rolled or formed shapes, welded or bolted to develop full strength of members joined. Welds on face which would interfere with covering or sash inserts are ground smooth. Frame members are straight within \(\frac{1}{8}'' \) in 20'0".

Main members of International Straight Slide Doors are designed to resist 20 pounds per square foot wind load, with deflection not exceeding 1/120 of span.

Covering is optional, either flat steel sheet 14-gauge, or International Galvanized Beaded Sheets. Attachment is made by welding, or by 1/4"-20 round-head, self-tapping machine screws.

Steel sash is standard fixed, inside putty glazed, and attached by welding or \(^1\frac{4}{''}\)-20 round-head, self-tapping machine screws.

All leaves are fitted at sides and bottom with cloth inserted rubber weathering and at top with bent steel plates.

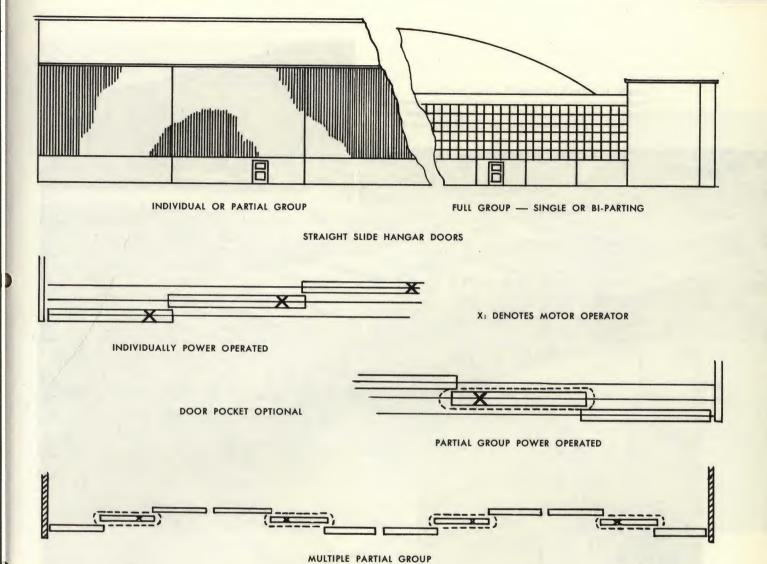
Items not furnished by door manufacturer: guide angles, rails and ties, glass, putty, field painting, and electric wiring for motor operators.

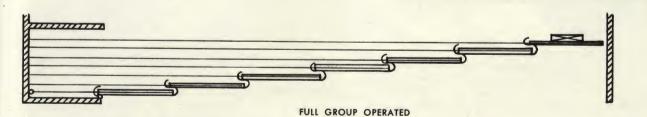
(Detailed specifications available on request.)

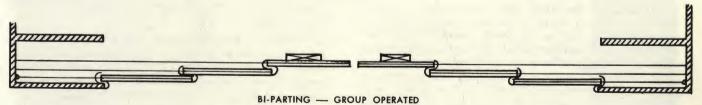


International Straight Slide Door Section 10' x 25' and weighing approximately one ton. Operated easily by one man. Installed at Nashville, Tennessee, Airport.

CONSTRUCTION DETAILS







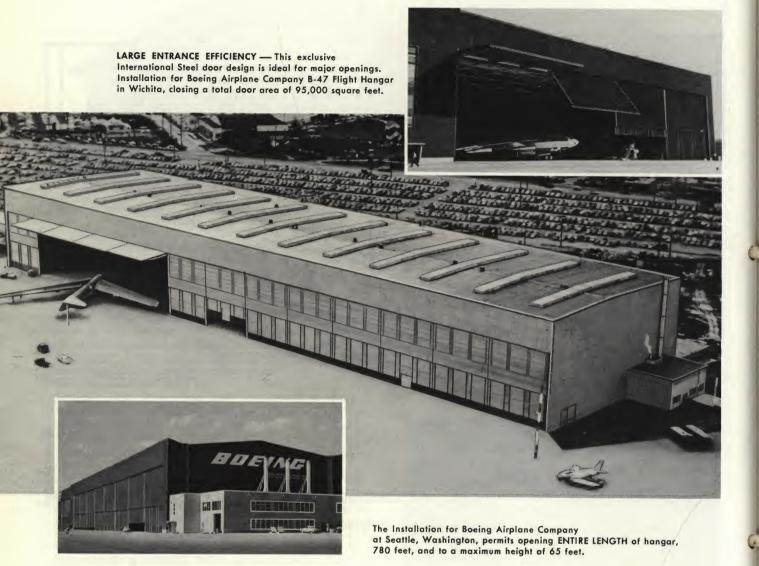
NOTE: MANUALLY OPERATED DOOR SIMILAR

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telescoping canopy doors





International Steel's exclusive Telescoping Canopy Doors are particularly suited to major-sized openings. There are no fixed vertical columns, no mullions between operating sections . . . so that unobstructed use of the entire opening area is provided.

No part of the door takes up productive space, either outside or inside of the structure, at any stage of opening or closing. No jamb counterweight areas are needed, as counterweights are integral with door. Sectional construction saves heat by permitting partial opening. Doors can be opened just as much or as little as is needed each time . . . low objects, such as trucks, require only that a lower leaf of one section be opened.

International Steel's Telescoping Canopy Door is divided horizontally into sections, vertically into individual operating leaves. Each operating leaf of the door operates from a single power source, and is arranged in a top and bottom section of approximately the same height. The bottom section rises vertically behind the top section. At a predetermined height both sections swing out and up to form a canopy outside over the door opening. Door construction permits partial opening when desired, at any position in the leaf's travel.

Absence of counterweights and cables permits future expansion of building. There are no rails to become clogged with snow or ice. Lower sections move vertically on opening, eliminating problems of drifted snow or striking any object in front of door.

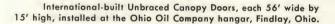
Furnished complete with all operating mechanism, electric motors, controls and counterweights . . . International's Telescoping Canopy Doors are most efficient and economical for exceptionally large openings.

unbraced canopy doors



International's Unbraced Canopy Door is exceptionally well-suited for most small and medium openings — up to 120' wide and 30' high — where interior clearance is limited and usable interior floor space is minimum. This door does not interfere with usable floor space when opening or closing.

In operation the International Unbraced Canopy Door rises vertically, then tilts inward and moves on upward, coming to rest in the full-open position with the lower half projecting outside . . . providing a canopy that offers protection against inclement weather when doors are open.





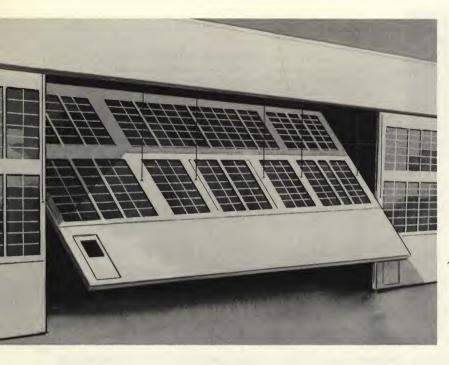


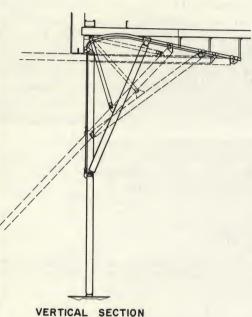
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braced canopy doors







International Braced Canopy Doors are engineered for installation in medium to large openings, specifically applicable where headroom is limited. Because they are sectionalized into individual operating units, lower door heights are permitted and opening area may be fully utilized.

Braced Canopy Doors when open lie horizontally under the lintel with approximately 50% of height of leaf extending out of building to form canopy over the opening. Leaves are counterweighted and individually operated, electrically, from control stations at jambs of openings. Weather-tight when closed, this type of door is stable in any position if stopped while being opened or closed. Each opening is provided with leaves of equal size to fill opening with no intermediate columns.

International Steel's installation of Braced Canopy Doors includes (1) designing, fabrication and erection of door leaves and their hardware; (2) all weathering at heads, jambs, sills, and between leaves; (3) pilot doors (if required) and their hardware; (4) complete operating mechanism, with mounting brackets and base assemblies; (5) motors, reversing panels, limit switches and other electrical control equipment; (6) counterweights, their guides and enclosures at floor level.



McConnell Aircraft Corporation, St. Louis, Missouri.

bi-fold canopy doors



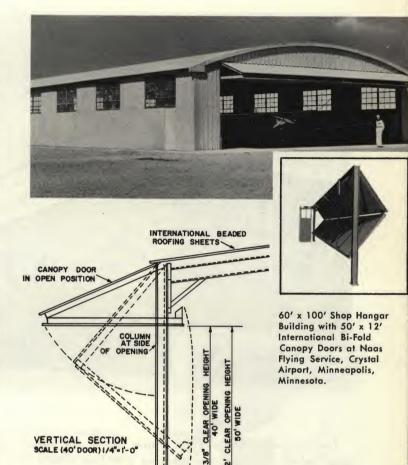
INTERNATIONAL DOORS

The exclusive International Bi-Fold Canopy Door is outstanding for its simplicity of design, lasting dependability, and space-saving efficiency. Of extrarugged, all-steel construction (requiring an absolute minimum of maintenance) this door is so precisely engineered that it can be manually opened or closed in only 30 seconds.

This door does not project inside the structure, thus providing additional usable space and eliminating the possibility of damage to propellers. It is standard equipment on all International "T" Hangars. Operation is smooth and easy under all weather conditions . . . it does not become icebound.

Furnished in three sizes only: 40'0" x 9'73%" clear opening, 45'0" x 12'0" clear opening, and 50'0" x 12'0" clear opening. These sizes accommodate the majority of single- and twin-engine executive aircraft.

The Bi-Fold Canopy Door is constructed of hotrolled structural shapes welded into four assemblies per door. Top and bottom leaf halves are bolted together in the field. Top leaf is hinged to supporting building steel, and bottom leaf is hinged to top leaf. Two jamb rollers which travel in guides center the door leaf and control its direction. Pilot door optional in all sizes.



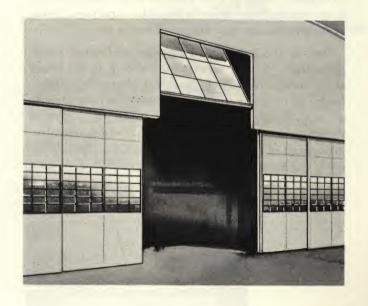
tail doors

International Steel Motor-Operated Tail Doors are designed as one- or two-section vertical lift, Unbraced Canopy, Bi-Fold, Braced Canopy or Hinge type. They are used in conjunction with straight slide or curved track slide doors where added tail height must be provided in the center of the hangar entrance.

All International Tail Doors are furnished complete with power unit, electrical controls, shafting, drums, sheaves, necessary cables, and weathering. Glass area is optional.

International Tail Doors are engineered to resist a wind load of 20 pounds per square foot, without exceeding extreme fibre stress of 27,000 pounds per square inch. Deflection under above wind load shall not exceed 1/120 of span.

Drawing shows typical International Tail Door operating pattern.





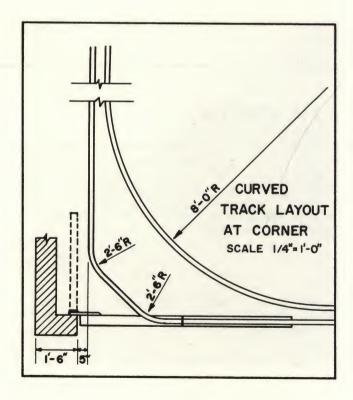
curved-track slide doors





International Curved-Track Slide Doors are the ideal solution to entrance opening problems where building areas will not permit door pockets. This type of door is identical with International Straight Slide Doors in construction, but bottom rollers have adjustable swivels. This permits easy movement of doors around curved rails into the structure. Jamb leaves are narrow and hinged to swing in.

One of the primary advantages of Curved-Track Slide Doors is their operational ability in all kinds of weather conditions. In localities where the exterior tracks of ordinary doors are jammed by snow, slush or mud during extreme weather, this door assures smooth, easy operation at all times. It slides along the inside wall of the structure, out of the way, and eliminates the need for outside tracks.



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crane doors



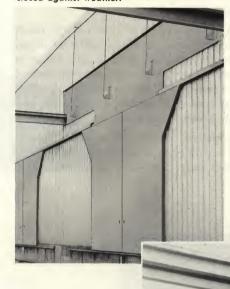
INTERNATIONAL DOORS

International Crane Doors offer definite advantages where a craneway runs from the building interior to an outside yard. They operate quickly, providing easy entrance or exit to the building for the crane, and affording protection against the elements for workmen inside during extreme weather conditions. Working efficiency inside the building is increased, particularly in materials handling operations.

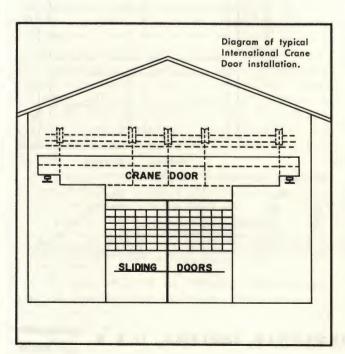
Sizable savings in heating costs during cold weather months are made with this type of door. Weathertight and highly wind resistant, International Crane Doors open and close quickly — at an average speed of 45 feet per minute.

Operating mechanism is installed inside the structure and safeguarded from damage by outside elements. Where daylighting is desired, steel sash can be included in the design to permit maximum entry of outside light.

For maximum ease of use; dependable, troublefree life; safety of operation; and fast, smooth opening and closing . . . International Crane Doors are the answer. Exterior view of International Crane Door installation, showing the door completely closed against weather.



Exterior view, same installation, with International Crane Door fully open to permit operation of crane.

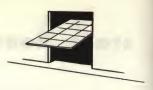


Interior view, showing crane door completely closed. Note that bottom parts of doors are constructed for easy full-width opening.

These slide doors may be swing type if desired.



industrial turnover doors



International Industrial Turnover Doors are available in one- and two-section styles to fit variable entrance opening requirements.

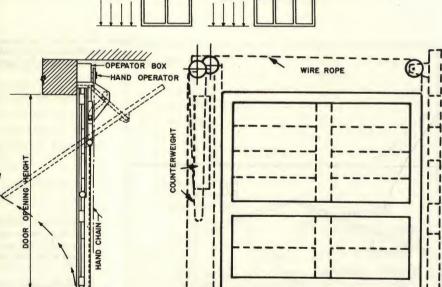
A combination of the vertical lift and canopy doors, this type is especially suitable where only minimum interior clearance is available during any phase of the door-operating cycle. Effectively counterbalanced, the Industrial Turnover Door is easily operated manually. Where size or location does not permit manual operation, electric operators can be installed.

One-section Industrial Turnover Doors are limited in maximum size to 168 square feet, and are furnished manually operated only. Two-section doors can be supplied in larger sizes, for manual or power operation.

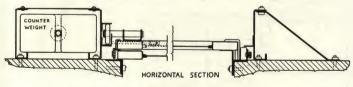
Door leaves are of tubular or channel-type construction. Each door is composed of a top and bottom leaf of similar size. Tubular frame members are of $1\frac{3}{4} \times 5 \times 16$ -gauge steel tubing, or such channel shapes as may be required for the opening size. Leaves are covered with 13-gauge steel sheets held in place by retainer angles, or screwed or welded directly to the frame. Upper leaves can be furnished with steel sash inserts if desired. Guides for jamb attachments and guide rollers are structural or rolled shapes, determined by door size and usage.



Typical installation of single-section International Industrial Turnover Door.



SINGLE-SECTION CANOPY TYPE



OUTSIDE ELEVATION

TWO-SECTION TURNOVER

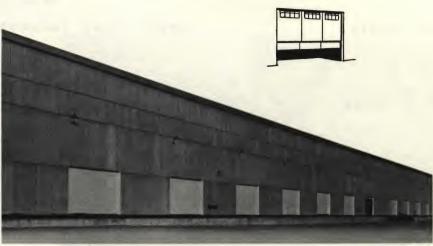
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VERTICAL SECTION



industrial vertical lift doors

INTERNATIONAL DOORS



Battery of International Vertical Lift Doors at Beeler Warehouse Corp., Evansville, Indiana.

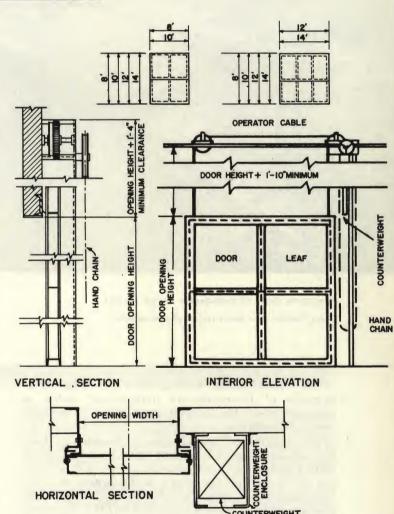
International Industrial Vertical Lift Doors are available in 1-, 2-, or multi-section units, permitting adaptation to fit space and entrance limitations. They are particularly suited to use where overhead clearance is not limited, and conservation of inside working area is important. Narrow jamb space, and unobstructed overhead area, provide ideal conditions for installation of this type of door.

Industrial Vertical Lift Doors are engineered for either power or manual operation, in light or heavy construction, to meet any requirements of size and function. They may be mounted either inside or outside, permit use of inside space up to the door, and are not affected in operation by snow, debris, or uneven ground outside of door. Glass can be inserted in any section, and pass doors may be provided in lower sections to provide entrance not requiring full door opening.

International Industrial Vertical Lift Doors are constructed to meet specific entrance requirements. Leaves in the multi-section type are set one behind the other, with travel so arranged that all leaves arrive at the full open position together. Manual door operator is an International shop assembled unit which can be arranged for electric operation if required.

Leaves are covered with 13- or 14-gauge steel sheet welded, bolted or fastened with machine screws to tubular or channel frames. Steel sash inserts, inside putty glazed, can be placed where required. All corners and intersections are welded and smoothed on exposed surfaces, and welds develop the full strength of the section.

Full-counterbalanced for smooth operation, this type of door requires minimum effort to raise or lower. Completely weather-tight when closed, dirt, dust, air and weather are kept out . . . cutting heat loss.



vertical lift pier doors (multi-section)





The Multi-Section Vertical Lift Pier Door is an example of International's outstanding ability to fabricate doors for unusual application, or to meet unusual conditions.

This particular type of door is designed to meet the requirements of advanced pier design, in which ceiling limits have been raised to permit higher stacking of cargo. International's Multi-Section Vertical Lift Pier Doors take full advantage of this design alteration, by providing full use of this increased storage area . . . even that directly behind door openings. This door stacks compactly directly above and behind door opening. Lighting systems and sprinklers are given maximum utilization in areas adjacent to door openings.

International Multi-Section Vertical Lift Pier Doors are furnished in two basic types: (1) standard first deck doors and (2) special barrier-placing second deck doors. First deck doors are multi-section with one upper leaf provided for glass. Second deck doors are similar, except that they are so arranged that the lower 4'0" high panel may be left in place when door is opened. If full door opening is desired, barrier panel locks to bottom door panel and becomes part of the door.

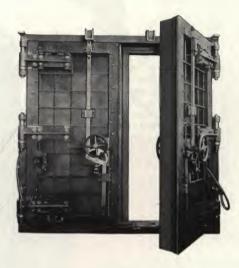
Doors and guides are designed to withstand required horizontal wind pressures. Door jambs are attached to the structural framing where required.

INTERNATIONAL STEEL COMPANY · EVANSVILLE, INDIANA, U.S.A.



special door types

Regardless of how specialized your door requirements may be, International Steel Company either has built doors for similar application . . . or CAN build yours. New buildings, new processes, new industries . . . all constantly call for "something that's never been done before" in door design and construction. That's the time to call International for the quickest, best, time-saving, money-saving answers to ANY door problem.



This concrete reinforced door, 9" thick, was built by International to meet the extreme conditions of jet engine testing at the General Electric Company plant, Lockland, Ohio.

other International products

In addition to doors for industry and aviation, International offer steel plus planning for any plant or project. Structural and warehouse steel, steel buildings, railroad products, revolving door entrances, stainless steel products and Lindsay structures . . . these are some of International's products and services. Whenever you need steel for any purpose . . . check with International.



An International revolving and swing door installation . . . typical of many entrance problems constantly solved by International.



A complete Mul-T Hangar installation by International at Bishop Airport, Flint, Michigan.



A typical International shop hangar installation made for the City of Bogalusa, Louisiana.



Partial List of International Hanger and Industrial Door Users

Boeing Airplane Company
(Wichita and Seattle)
Lockheed Aircraft Corp.
(Marietta, Georgia)
Piasecki Helicopter Co.
Cessna Aircraft Corp.
Grumman Aircraft
Engineering Corp.
Ohio Oil Co.
U. S. Navy
U. S. Army
U. S. Army Engineers Corps
U. S. Army Quartermaster Corps

U. S. Air Force, at:
Youngstown AFB
Hanscom AFB
Plattsburg AFB
Westover AFB
Forbes AFB
Walker AFB
Portsmouth AFB
Indiana Air National Guard
Kansas Air National Guard
North Dakota Air National Guard
Dept. of Marine and Aviation,
City of New York
Beeler Warehouse

General Electric Co.
(Evandale, Ohio)
General Foods Corp.
Igleheart Bros. Division
J. F. Beasley Construction Co.
International Nickel Co., Inc.
Interstate Oil Pipeline Co.
General Motors Corp.
Mead Johnson and Company
Orr Iron Company
J. R. Winter Pressed Steel Co.
American Steel & Wire Co.
The Texas Co.
Southern Ind. Gas
& Electric Co.

NATIONWIDE SERVICE

New York to Texas . . .

Washington to Georgia and Florida . . .

everywhere in the nation you'll find International Steel Products. From the new grandstands at the Indianapolis Motor Speedway to power stations in the new AEC expansion, new factories, plants, industrial and shopping centers . . . you find "STEEL BY INTERNATIONAL." Our service is truly nationwide. No matter where you are, geographically . . . call International.



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